

Abstract of the Disclosure

An assay stick 7 includes a transparent reaction vessel or tube 14 having one or more microbeads 8 disposed therein. The microbeads 8 have a plurality of unique identification digital codes based on a diffraction grating 12 disposed therein that are
5 detected when illuminated by incident light 24. The incident light 24 may be directed transversely onto the side or onto an end of the tube 14 with a narrow band (single wavelength) or multiple wavelength source, in which case the code is represented by a spatial distribution of light or a wavelength spectrum, respectively. The assay stick 7
10 may be reused or disposed upon completion of the assay. Instead of beads, cells or molecules may be spotted or grown directly on the tube.